PATENT APPLICATION
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UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTOR(S): Darwin Mitchel Hanks. **CONFIRMATION NO:** 8149

SERIAL NO.: 10/661,752 **GROUP ART UNIT:** 2627

FILED: September 12, 2003 **EXAMINER:** Lamb, Christopher Ray

SUBJECT: ESTABLISHING A BASELINE SIGNAL FOR APPLICATION TO AN ACTUATOR WITHIN AN OPTICAL DISK DRIVE

APPELLANTS'/APPLICANTS' OPENING BRIEF ON APPEAL

1. GROUNDS FOR REJECTION TO BE REVIEWED.

A. Claims 45-48 stand rejected under 35 USC §103 as being unpatentable over USPN 5,808,983 issued to Tsutsui in view of US Pub 2002/0105865 to Kusumoto.

B. Claim 13 stands rejected under 35 USC §103 as being unpatentable over Tsutsui in view of Kusumoto and in further view of USPN 5,164,932 issued to Fennema.

C. Claims 1, 4, 5, 14, 17, 18, 23, 25, 28, 29, 35, 38, 39, and 43 stand rejected

under 35 USC §103 as being unpatentable over USPN 5,742,573 issued to Hajjar in view of Tsutsui and in further view of Kusumoto.

D. Claims 2, 3, 15, 16, 26, 27, 36, and 37 stand rejected under 35 USC §103 as being unpatentable over Hajjar in view of Tsutsui, in view of Kusumoto and in further view of USPN 5,477,333 issued to Shoda.

E. Claims 1, 4, 9, 14, 17, 25, 28, 34, 35, and 38 stand rejected under 35 USC §103 as being unpatentable over US Pub 2002/0089906 to Faucett in view of Tsutsui and in further view of Kusumoto.

2. ARGUMENT.

Grounds For Rejection A – Claims 45-48 stand rejected under 35 USC §103 as being unpatentable over USPN 5,808,983 issued to Tsutsui in view of US Pub 2002/0105865 to Kusumoto.

Claims 45 is directed to a system for establishing a baseline signal for application to an actuator within an optical disk drive to focus optics on an optical disk within the optical disk drive. The system includes a baseline actuator positioning routine that is configured to do the following:

1. apply actuator control signals to the actuator to step the actuator through a full range of focus;
2. obtain a SUM signal at each step, the SUM signal being a sum of signals received from a plurality of focus sensors;
3. identify one of the obtained SUM signals; and
4. set the baseline actuator control signal according an applied actuator control signal which resulted in the identified one of the obtained SUM signals.

The Examiner is correct at page 15 of the Answer that the Appellant is focusing arguments on the meaning of the phrase "step the actuator through a full range of focus." The Specification notes at paragraph [0021] that an actuator (128) has a default position that focuses optics on a location or layer within a disk. Through the application of a baseline voltage to the actuator, the optics are refocused from a position inside the disk to a position on the surface of the disk.

Paragraph [0022] indicates that the baseline voltage can be an estimate. Paragraph [0023] describes calculating an appropriate baseline voltage based upon objective measurements. In doing so, the optics are moved through a full range of focus. Because the optics can focus on a layer within the disk and on the surface of the disk, stepping the actuator through a full range of focus at least includes stepping the actuator from one end-point at which the optics are focused on an internal layer to another end-point at which the optics are on a position above the surface of the disk. Moreover, as noted, the actuator's default position focuses the optics on a layer within the disk. In a given relative orientation, this foal point is too near. Thus, when stepping the actuator through the full range, as discussed in paragraph [0023], the optics are at one end-point focused to near with respect to the disk surface. At the other end point, the optics are focused too far. Thus, the full range of focus extends from one end-pint within the disk to another end-pint out-side the disk.

With this in mind, the Appellant respectfully maintains that applying actuator control signals to the actuator to step the actuator through a full range of focus results in the optics being shifted thought the entire range the optics can move. In the opening brief, the Appellant explained that Tsutsui and Kusumoto fail to teach or suggest applying actuator control signals to an actuator to step the actuator through such a full range of focus. In particular, Kusumoto is silent on the point while Tsutsui describes stepping though much less than a **full** range. As explained in the opening brief, Tsutsui teaches system that includes a focusing servo circuit (9) that acts on a focusing coil (12) to focus an optical head (3). Tsutsui, col. 5, lines 53-63. Tsutsui teaches that the focusing servo circuit (9) can be caused to control the focusing coil (12) in such a

manner as to cause the optical head (3) to change its focus from one layer to another within an optical disk. Tsutsui , col. 6, lines 36-55 and Fig. 21.

Thus, Tsutsui's system has a full range of focus that at a minimum allows the focus to be shifted from one layer to another. However, Tsutsui's mentions nothing of apply actuator control signals to the actuator to step the actuator through such a full range of focus. Instead, Tsutsui describes applying a predetermined signal to cause the optical head (3) to focus on a selected layer of an optical disk. Tsutsui, col. 6, lines 47-51 and step S5 of Fig. 2. Next Tsutsui's system performs "optimum focus searching processing" for that layer. Tsutsui, col. 6, lines 57-61 and Step S2 of Fig. 2.

Tsutsui describes an example of "optimum focus searching processing" of step S2 at col. 10, lines 35-49. The Examiner mistakenly asserts that the description teaches apply actuator control signals to the actuator to step the actuator through a full range of focus. Remember, Tsutsui teaches a system that has a full range of focus that spans multiple layers of an optical disk. The optimum focus searching processing steps the focus of Tsutsui's optical head (3) through a subset of that full range.

To elaborate, the passage discusses successfully stepping the focus the optical head (3) about a particular layer of an optical disk. Such is evident from the graph of Fig. 7. The apex of the curve indicates that the optical head (3) is focused on a given layer. Had Tsutsui's optical head (3) been taken though a full range of focus, multiple apexes would be visible – one for each time the optical head (3) is focused on a different layer.

For these reasons, the Appellant respectfully maintains that Tsutsui fails to teach or suggest applying signals to the focusing servo circuit (9) and focusing coil (12) that cause the pair to step the optical head (3) through a full range of focus.

For at least these reasons, Claim 45 and Claims 1-5, 9, 11, and 13 which depend from Claim 45 are patentable over Tsutsui alone and when combined with Kusumoto.

Claims 46 recites a processor-readable medium comprising processor-executable instructions for focusing optics within an optical disk drive. The processor-executable instructions include instructions for the following:

1. applying actuator control signals to the actuator to step the actuator through a full range of focus
2. obtaining a SUM signal at each step, the SUM signal being a sum of signals received from a plurality of focus sensors;
3. identifying one of the obtained SUM signals; and
4. setting the baseline actuator control signal according an applied actuator control signal which resulted in the identified one of the obtained SUM signals.

As with Claim 45, Tsutsui does not teach or suggest (a) applying actuator control signals to the actuator to step the actuator through a full range of focus or (b) obtaining a SUM signal at each step. For at least these reasons, Claim 46 is patentable over the cited references as are Claims 14-18, and 23 which depend from Claim 46.

Claims 47 recites a method of establishing a baseline signal for application to an actuator within an optical disk drive to focus optics on an optical disk within the optical disk drive. The method includes the following:

1. applying actuator control signals to the actuator to step the actuator through a full range of focus;
2. obtaining a SUM signal at each step, the SUM signal being a sum of signals received from a plurality of focus sensors;
3. identifying one of the obtained SUM signals;

4. setting the baseline actuator control signal according an applied actuator control signal which resulted in the identified one they obtained SUM signals.

As with Claim 45, Tsutsui does not teach or suggest (a) applying actuator control signals to the actuator to step the actuator through a full range of focus or (b) obtaining a SUM signal at each step. For at least these reasons, Claim 47 is patentable over the cited references as are Claims 25-29 and 34 which depend from Claim 47.

Claims 48 is directed to a system for establishing a baseline signal for application to an actuator within an optical disk drive to focus optics on an optical disk within an optical disk drive, the system includes various means for implementing the method of Claims 47. For at least the same reasons Claim 47 is patentable so are Claim 48 and Claims 35-39 and 43 which depend from Claim 48.

Grounds For Rejection B – Claim 13 stands rejected under 35 USC §103 as being unpatentable over Tsutsui in view of Kusumoto and in further view of USPN 5,164,932 issued to Fennema.

Claim 13 depends from Claim 45 and is patentable based at least in part on that dependency.

Grounds For Rejection C – Claims 1, 4, 5, 14, 17, 18, 23, 25, 28, 29, 35, 38, 39, and 43 stand rejected under 35 USC §103 as being unpatentable over USPN 5,742,573 issued to Hajjar in view of Tsutsui and in further view of Kusumoto.

Claims 1, 4, and 5 depend from Claim 45 and are patentable based at least in part on that dependency.

Claims 14, 17, 18 and 23 depend from Claim 46 and are patentable based at least in part on that dependency.

Claims 25, 28, and 29 depend from Claim 47 and are patentable based at least in part on that dependency.

Claims 35, 38, 39, and 43 depend from Claim 48 and are patentable based at least in part on that dependency.

Grounds For Rejection D Claims 2, 3, 15, 16, 26, 27, 36, and 37 stand rejected under 35 USC §103 as being unpatentable over Hajjar in view of Tsutsui, in view of Kusumoto and in further view of USPN 5,477,333 issued to Shoda.

Claims 2, 3, and 5 depend from Claim 45 and are patentable over the cited references based at least on their dependence from Claim 45.

Claim 16 depends from Claim 46 and is patentable over the cited references based at least on its dependence from Claim 46.

Claims 26 and 27 depend from Claim 47 and are patentable over the cited references based at least on their dependence from Claim 47.

Claims 36 and 37 depend from Claim 48 and are patentable over the cited references based at least on their dependence from Claim 48.

Grounds For Rejection E – Claims 1, 4, 9, 14, 17, 25, 28, 34, 35, and 38 stand rejected under 35 USC §103 as being unpatentable over US Pub 2002/0089906 to Faucett in view of Tsutsui and in further view of Kusumoto.

Claims 1, 4, and 9 depend from Claim 45 and are patentable based at least in part on that dependency.

Claims 14 and 17 depend from Claim 46 and are patentable based at least in part on that dependency.

Claims 25, 28, and 34 depend from Claim 47 and are patentable based at least in part on that dependency.

Claims 35 and 38 depend from Claim 48 and are patentable based at least in part on that dependency.

Conclusion: In view of the foregoing remarks, the Applicant respectfully submits that the pending claims are in condition for allowance. Consequently, early and favorable action allowing these claims and passing the application to issue is earnestly solicited.

Respectfully submitted,
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